

OVERHAULING OF BOILER FRONT PASS (Pass-I) -AOH of Unit-2, MPL

SCOPE OF WORK-

Front Pass (Pass- 1) Includes,

Complete Cup lock scaffolding, Boiler Drum(1No.), Bottom ring Headers (04 Nos.), Coal & Oil Burner assembly, Rear arch enclosure (Doghouse), Bottom enclosure (Cat house) front and rear, CBD Tank (1 No.), IBD Tank (1 No.), BCW emergency Tank (1 No). Complete Coal, air and oil compartment assemblies (4 Nos.), Burner & burner tilt arrangement, SADC dampers Boiler pressure parts (WW Screen, BP front hangers and LTSH terminal assembly).

DURATION: Total duration of Contract is 26 Days from issue of permit to Hydrotest. Time is the essence of the contract. Vender to ensure timely completion of all activities. Tentative Outage start date is **01/11/2024**.

PRICE SCHEDULE:

OVERHAULING OF BOILER FRONT PASS (Non Pr. Parts)				
SR NO	CODE	JOB DISCRIPTION	UOM	QTY
10		Complete Cup-Lock scaffolding		
10.10	4076132	MECH, Scaffoldings work with material	EA	1
20		Inspection & correction of Drum internal		
20.10	4167713	INSP AND CORR OF DRUM INTERNALS	EA	1
30		Bottom ring header inspection and correction		
30.10	4167714	BOTTOM RING HEADER INSP&CORRECTION	EA	1
40		CBD, BCW emergency tank and IBD Tank Inspection		
40.10	4167715	CBD, BCW & IBD TANK INSP & CORR	EA	1
50		MECH, Overhauling of burners and Aux		
50.10	4062945	MECH, Overhauling of burners and Aux	AU	1
60		Fixing of Shields (BPFH, SCREEN, Terminal)		
60.1	4087135	Fixing of Shields at Bend Tubes	M	600
60.2	4268965	Shield Argon Run welding	M	400
60.3	4165264	Fixing of Straight Shield in back pass	EA	900
70		Cutting and Welding of Pressure Part Joints with RT		
70.10	4072062	Ultrasonic thickness	EA	8000
70.2	4164219	LTSH WJ, Size OD 47.63X5.6 mm, SA213 T11	EA	100
70.3	4164220	BPFH WJ, Size OD 51X6.3 mm, SA210 Gr C	EA	300
70.	4164221	WW Screen WJ, OD 63.5X7.1 mm, SA210 Gr C	No	100
80		Refractory Work		
80	4165265	Refractory Work (Castable/Plastic)	MT	20

GENERAL CONDITIONS OF CONTRACT

1. Bidder shall follow all the IBR Guidelines as laid down by Jharkhand IBR authority.
2. Bidder shall perform / assist in Hydro test to be carried out after the completion of annual overhauling, which will be witnessed by IBR authority.

3. All other government statutory HR/IR requirements required to carry out the overhaul jobs will be in the scope of the bidder.
4. Prebid discussion will be arranged at MPL site. Bidder shall participate to understand the job scope and sign pre-bid MOM. Without site visit and attending pre-bid discussion, bidder shall not be considered for the contract. Bidder should also understand the existing Gate pass and training formalities at MPL during site visit.
5. Bidder shall mobilize at least 15 days in advance from Overhaul zero date for HR/IR and gate pass Formalities, safety orientation, TPSDI L1 training, Inspection of safety PPE, tools, statutory compliances, and pre-outage works. Complete manpower must be deployed before Outage zero date. Deployed manpower should not demobilize the site without the permission of MPL EIC.
6. Job will be carried out round the clock basis.
7. Bidder should submit detailed list of resources planned to be allocated for the job.
8. Safety and Quality to be strictly followed as per MPL standard practice. All PPE's to be provided by Contractor. Penalty is applicable for Safety/ HR rules violation as per MPL standards. Typical safety observations related to scaffolding, PPE's, housekeeping, electrical observations etc should not take place. Otherwise it may attract penalty deduction as per contract terms.
9. Bidder must comply with the observations raised regularly by Safety Department and concerned engineers on a day-to-day basis. Penalty shall be applicable for noncompliance.
10. Minimum 1 Safety supervisor per 50 workers is required. 1 Safety Head approved by MPL Safety department shall be deployed for the entire duration of job. He will closely monitor the work and report to MPL EIC/ Safety Department.
11. Safety head and all safety supervisors should be mobilized prior to manpower mobilization at site and start of work.
12. Bidder shall submit Daily progress report to EIC and concerned MMD engineers regularly.
13. Bidder's Engineers/ Foreman/ workmen who will be working in critical areas need to be interviewed and approved for work in overhaul by MPL. This is to be completed before overhaul commencement.
14. The bidder shall deploy adequate machinery and resources, in terms of number and skill, for carrying out the work under the order.
15. If the bidder decides to sublet any part of job to other agency, prior approval needs to be taken from MMD EIC. No other agency shall be allowed on site without prior approval.
16. All tools and tackles and consumables required to carry out the work is in Bidder's scope, for example but not limited to:
 - a. Chain pulley blocks, pulleys, ropes, jacks, D shackles etc shall be in the scope of the bidder. Tools and tackles to be certified by MPL Engineers / Competent third party.
 - b. Hydra need to be pre-approved by MPL, prior to mobilization at site, also the equipment's should have valid statutory certification and driver should have proper license.
 - c. Winch Machines for executing the work, for shifting of materials and scaffolding is in Bidders scope. To be certified by MPL Engineers / Competent third party.
 - d. 440 V Welding machines (each with ELCB, sufficiently long cables and industrial plugs to fix on the sockets), industrial Distribution boards, electric heating and portable ovens, safety appliances, TIG sets, Gas cutting sets with flash back arrestor, welding accessories, welding cables, welding consumables, electrodes of approved make (D&H Secheron & Ador only),

oxygen, acetylene, Grinders, Aprons and consumables, etc shall be in the scope of the bidder. All electrical equipment's to be inspected and approved by MPL.

- e. 24 Volts lighting transformers, lighting fixtures with lamps and cables of sufficient length as per site requirement for illumination at work areas. Only 24 V lighting is permitted inside confined areas and shall be in the scope of bidder.
 - f. Hose pipes, clamps, headers, nozzles etc for Water/Air blast cleaning shall be in the scope of the bidder.
 - g. Consumables such as cotton waste, hand gloves, hacksaw blades, emery tape/paper, grinding wheels, lapping paste, Prussian blue, WD-40, paint remover, painting brushes, wire brushes, scrapers etc is in bidders' scope.
 - h. Enclosed sheds or suitable lockers for safe keeping of all tools, spare parts and consumables near work site.
 - i. Welding electrodes of reputed make approved by MPL (D&H Secheron or Ador) should be arranged by the bidder.
 - j. Tarpaulins for making suitable enclosures/ sheds as required in bidder's scope.
17. Cleaning of ash at Boiler Zero meter from TG Bay to Back pass area below Eco Hopper will be in the scope of bidder. All surface drains in this area to be cleaned and ash lifting and shifting to designated place is in vendors scope. All equipment's, loaders and tractors in Bidders scope.
18. Bidder shall ensure strict housekeeping of the work area on DAY TO DAY basis.
19. For entire scope of work- All insulation removed to be collected and packed in polythene bag and shifted to scrap yard on DAY TO DAY basis. Shifting and arranging Polythene bag is in Bidder's scope.
20. Post completion of shutdown, critical manpower as asked by MPL EIC must stay up to 3 days after synchronization or till plant reaches stable load condition.
21. Defect liability period for overhauling jobs shall be up to 12 months from the date of completion of overhauling activity. Any part found defective during this period, as consequence of bad workmanship shall be repaired, free of cost, by the vendor. Contractor shall report within 2 days from the date of intimation by the Order manager to attend the defect.

Penalty

Following penalties will be imposed:

1. Strict quality to be maintained for the job.
2. Delay per days basis- In case the shutdown extends beyond stipulated shutdown days due to the lack of contractor's deputation/ repeat works/ Incomplete execution, then deduction will be imposed on per day basis as 0.5% of the contract value. However exact number of days of shutdown will be intimated before unit desynchronization. Contractor to maximise highly skilled work force and tools, tackles machineries to avoid the penalty deduction.
3. Working area cleaning & Housekeeping will be done as instructed by EIC, any deviation will be penalised .

General Requirements

1. Physical verifications of the Lifting Tools & Tackles to be done by MPL EIC along with MPL Safety I/C. Rejection of defective elements with definite Colour codes. Accepted tools also will be Colour coded as per standard.
2. Load test certificate of the lifting tools & tackles and entire lifting system by Government approved/MPL registered Vendor to be obtained.
3. All required T&P, welding m/c, gas cutting, grinding, lifting tools and tackles, new generation hydra of suitable capacity shall be vendor scope.
4. **For the contract 1 new generation hydra (23 mt Capacity) with 24 hrs. Driver provision in in bidders' scope.**
5. **1 Number trailer/ truck/ Hyva dumper with 24 hrs. driver provision for shifting of scaffolding and other material from store to site is in in bidder's scope.**
6. All welding consumables (complete TIG welding) shall be vendors scope.
7. Welding consumables shall be of approved make only. **(D&H Secheron or Ador only),**

MPL scope:

1. All special tools, torque wrenches, hydraulic tensioning device, lifting, disassembly and assembly - fixtures supplied by the OEM.
2. Fasteners, spare parts, structural steel, plates & pipes etc for replacement. Paints for application.
3. Refractory & Insulation materials.
4. Welding electrodes and filler wires for stainless-steel welding.
5. 440/230V supply will be provided at nearest designated points.
6. Functional Workshop for general machining job, however if any complicated machining is required that will be under party scope.
7. Free of cost water and electricity will be provided by MPL.

Ash removal and cleaning:

1. Internal Cleaning consists and includes the complete and thorough cleaning of Penthouse, deck slab roof area above penthouse, rear arch enclosure, bottom enclosure, etc. to the entire satisfaction of Engineer in Charge.
2. As a precautionary measure before water washing, all instruments/ actuators, welding machines shall be properly covered with Tarpaulin/polythene to prevent water/ash ingress.
3. Cleaning of ash and damaged insulation from penthouse, rear arch enclosure, wind box and bottom enclosure.
4. Remove ash and insulation materials between the coils in the crown plate zones of SH inside penthouse.
5. All insulation removed to be collected and packed in polythene bag and shifted to scrap yard on DAY-TO-DAY basis. Shifting and Polythene bag is in Bidder's scope.
6. Ash to be collected in good quality leak proof gunny bags at different locations and brought down to the ground floor, proper care to be taken for any spillage of loose ash to boiler area and to be disposed to area designated (Ash Pond) by MPL.
7. Arrangement of gunny bags shall be done bidders.

10. Complete Cup-Lock scaffolding- Installation and removal:

10.10. Activity- Complete Cup-Lock scaffolding- Installation and removal - Quantity- 1 AU

1. Shifting of complete Boiler scaffolding materials from MPL store shed to the boiler area.
2. Erection of scaffolding up to the roof level starting from the bottom S-panel of the furnace.

3. Erection of peripheral platforms and full working platforms as per drawing. Drawing shall be provided by MPL.
4. Erection of staircases, handrails, toes guards with landing platforms up to the roof from the bottom of the furnace and with safety nets at two elevations.
5. Arrangement of lighting at 4 corners at all working platforms. Bidder must bring enough light fittings and cables. Lighting should comply with Tata Power/ MPL confined space lighting specification.
6. After completion of the overhauling jobs, all the scaffolding material are to be dismantled and are to be shifted to the designated storage area and stacked properly.
7. To and fro transportation/shifting of scaffolding materials are in the bidder's scope of work. Bidder should mobilize dedicated trailer/ truck/ Hyva dumper with 24 hrs driver with valid gate pass, at least one week advance before outage commencement for shifting the scaffolding materials. This will be pre-outage job.
8. Time limit for erection of pass 1(including Platen SH, scaffolding is strictly 96 hours after the clearance given by MPL and Time limit for dismantling of the same is 60 hours after the clearance given by MPL. 24 hrs working shall be ensured by the bidder.
9. Bottom S panel blanking(sealing) to be done in such a way that no debris, material, gas gutting and arc welding spatter shall fall to bottom ash hopper. All small steel battens openings to be sealed with the help of rubber mats and gunny bags. Rubber mats shall be provided by MPL. This shall be ensured before starting of base locking of scaffolding.
- 10. Penalty of Rs. 1.0 Lac per day will be imposed in case of delay in erection or dismantling work of cup lock scaffolding system is observed for any reason attributable to the contractor.**
11. Housekeeping to be done by the contractor daily to the satisfaction of the MPL engineers. Clear the work areas of all debris / scrap.
12. **Special Safety Requirement for Cup lock scaffolding work:** Bidder must provide enough **Retractable fall arrestors** to workmen during scaffolding erection and dismantling.

20. Inspection and correction of Drum internals:

20.10. Activity- Inspection and correction of Drum internals - Quantity- 1 EA

1. Opening of drum manhole doors.
2. Drum dry box inspection.
3. Collection of sediments inside drum and hand over to EIC for further inspection & tests.
4. Dismantle the turbo separators with proper marking as per the instruction of MPL engineer.
5. Dismantle the screen drier as per the instruction of MPL engineer.
6. Inspection for any abnormalities and further correction. Check all the fasteners for tightness and replacement of damaged fasteners.
7. Inspection of risers' pipes (If required open one or two baffles' plates.)
8. Inspection of dosing pipes and blow down pipes
9. All NDT shall be in bidder's scope.
10. The manholes to be closed with leak proof tightness by applying spiral wound gasket after clearance.
11. Hot tightening of manholes bolts to be done during unit light up as per instruction of MPL engineer.

30. Bottom ring header inspection and correction:

30.10 Activity- Bottom ring header inspection and correction - Quantity- 1 EA

1. Opening of Ring headers manhole doors.
2. Cleaning of Bottom Ring Header.
3. Inspection of Screens, Orifices, correction and replacement if required.
4. Through cleaning of bottom ring header by cutting the drain pipes and re-welding if required. Welding consumables, NDT, pre and post heat of weld joint shall be in bidder's scope.
5. Collection of sediments inside ring header and hand over to EIC for further inspection & tests.
6. All consumables for internal inspection of ring header will be arranged by the bidder.
7. The manholes to be closed with leak proof tightness by applying spiral wound gasket after clearance.

40.CBD, BCW emergency and IBD Tanks Inspection and correction:

40.10. Activity- CBD, BCW emergency and IBD Tank Inspection and correction - Quantity- 1 AU

1. Opening of manhole door, cleaning and inspection.
2. Correction based on inspection.
3. The manholes to be closed with leak proof tightness by applying gasket after clearance from MPL engineer. Gasket to be cut as per size from gasket sheet provided by MPL.

50. MECH, Overhauling of burners and Aux:

50.10. Activity- MECH, Overhauling of burners and Aux - Quantity- 1 EA

Scope Comprises-

1. Checking/ Repair/ Replacement of Coal Nozzles/ Compartment Assembly including setting of Burner tilt mechanism.
2. All coal nozzle assemblies(32Nos.) has to be taken-out for checking and servicing.
3. Complete replacement including Burner tip – 40 Nos. (Including air nozzles.)
4. (Two or more teams separately should be deployed for each job to complete this job within stipulated period-20 days).
5. The quantity may change depending up on the condition of oil and air nozzles.
6. Bidder must Mobilize manpower for all Coal nozzle assembly parts matching, readiness, and shifting at burner elevations, and complete all the activities before unit shutdown.

Activities are as under: -

1. Remove the burner inlet gate after removal of burner inlet elbow.
2. Remove scanner assemblies, oil gun assemblies and igniter assemblies.
3. Remove all cooling hoses.
4. Remove the inner panel & outer panel assemblies.
5. Remove coal compartment assemblies.
6. Repair the coal nozzle assemblies locally & hard facing.
7. Coal nozzle seal plate, nozzle tips to be checked.
8. Nozzle tips to be checked for burns, cracks, distortion, and damage.
9. Replace coal nozzle assembly, if it is beyond repair.

10. Alignment of fuel inlet elbow with coal pipes.
11. Clean all the nozzle assemblies.
12. Inspect refractory near burners/ burner tubes and repair if found damaged
13. Removal and reapplication of thermal insulation on the outer panels shall be in bidder's scope. Insulation material will be provided by MPL.
14. Assemble the inner & outer panels.
15. Put new ceramic tape, gaskets for assembling.
16. Dismantle the burner tilt mechanism in all the four corners.
17. Clean all the parts and Check all the pins for any wear and tear.
18. Burner tilt assembly drive shaft, Drive shaft keys, Drive shaft bushing to be checked. Replace all the damaged pins and apply anti seize spray on all the contact areas.
19. Check all the drive shaft trueness and reassemble the tilt mechanism with new split pins.
20. Connect all the reach rods to the tilt mechanism and manually check the operation for tilt.
21. Carryout the zero setting after nozzles in all the elevation in all the four corners is inserted.
22. Inspect burner panels and carryout repairs/ rectification wherever required. The repairs/ rectification shall include the following:
 - a. Straightening the bulged/ distorted plates and pivot pins if any, by heating and using suitable fixtures etc. (to be fabricated by the Contractor).
 - b. Repair weld cracks if any by grinding and re-welding.
 - c. Carry out patch repairs as per requirement plate thickness is 8mm, approx.
23. Clean all the scanner housings, igniter housings and oil gun housings.
24. Connect the power cylinder to the tilt mechanism and Operate power cylinder to check the tilt (± 30 degree).
25. Servicing and setting of SADC of all four corners at the satisfaction level of MPL engineer (If required Link & Bushes to be replaced.)
26. Checking and repairing of intermediate/supporting truss in wind box.
27. Burner inlet gate servicing and fixing.
28. 8 numbers of aux air nozzles Correction/Replacement is included in scope.

60. Fixing of Shields (BPFH, SCREEN, Terminal)

1. The bidder shall quote for fixing of erosion shields at bend tubes at locations - Screen area, BPFH, TT Coils and as specified by engineer in charge.
2. Material for the erosion shield will be supplied by MPL.
3. For BAPH Hanger lower section area, for all bends and straight piece, needs to be covered with Box shield (made up of 2 number 180 deg shields). Box shield will be provided in readymade condition in 2 parts. Need to be fixed and argon welding to be done. Payment for box shield fixing will be as per EA number fixing done. Welding for Box shield joining will be paid separately against line item 60.2 on running meter basis. Total number of **Box shield will be Bend-118 numbers, straight -118 numbers.**
4. For Water wall Screen and Terminal section, for all bends and straight piece, needs to be covered with readymade 180-degree shield. Shield will be provided in readymade condition. Need to be fixed and welding to be done. Payment for 180 Degree shield fixing will be as per EA number fixing done. **No welding running meter will be paid separately.**
5. Consumables for fabrication of erosion shield and will be in bidder's scope.
6. Bidder must ensure that while fixing of erosion shield, welding should not be done on tube. In case any such deviation is found by engineer in charge, the bidder must rework on the shield and on the tube (if need be) at no additional cost to MPL.

60.1	4087135	Fixing of Shields at Bend Tubes (Length-1.0 Mtr)	EA	600
60.2	4268965	Shield Argon Run welding (Only for 360 Deg Box shield)	M	400
60.3	4165264	Fixing of Straight Shield in (BPFH, SCREEN, Terminal) (Length-1.6Mtr)	EA	900

70. Cutting and Welding of Pressure Part Joints with RT

70.1	4072062	Ultrasonic thickness	EA	8000
70.2	4164219	LTSH WJ, Size OD 47.63X5.6 mm, SA213 T11	EA	100
70.3	4164220	BPFH WJ, Size OD 51X6.3 mm, SA210 Gr C	EA	300
70.4	4164221	WW Screen WJ, OD 63.5X7.1 mm, SA210 Gr C	EA	100

70.10 Ultrasonic Thickness/ TUBE THICKNESS MEASUREMENT

1. Thickness survey of boiler tubes with the help of ultrasonic thickness gauge.
2. Ultrasonic thickness gauge shall be arranged by the vendor (Minimum 2 nos.) to carry out the job. However, the bidder may arrange a greater number of thickness gauges to complete the job in stipulated time. Calibration certificate of ultrasonic thickness gauge to be shown / submitted.
3. Thickness measurement of boiler tubes: Spot clean boiler tubes and carry out thickness measurements by ultrasonic thickness measurement method at about 8000 random spots as specified by MPL at the below mentioned locations.
 - LTSH Terminal
 - BP front hangers
 - Screen tubes
 - Back pass Roof
4. Bidders need to deploy experienced and certified NDT expert. For the ultrasonic thickness measurement job.
5. The bidder must produce relevant calibration documents of the instrument before starting the job. Party must carry curvature probe to get exact thickness on lower diameter curved surface.
6. Report of thickness measurement shall be submitted to Maithon Power (MPL) in hard and soft copy (PDF & excel sheet) along with drawing and location of measured zones and locations.
7. **Scaffolding for performing the Ultra sonic thickness measurement is in bidder's scope. Scaffolding materials shall be provided by MPL.**

FOR BELOW ITEMS:

70.2	4164219	LTSH WJ, Size OD 47.63X5.6 mm, SA213 T11	EA	100
70.3	4164220	BPFH WJ, Size OD 51X6.3 mm, SA210 Gr C	EA	300
70.4	4164221	WW Screen WJ, OD 63.5X7.1 mm, SA210 Gr C	EA	100

Bidder must execute the following:

1. Removal of existing shield at WW Screen, Back pass front hangers, LTSH Terminal area.
2. Scaffolding to be prepared at all elevations (every 2-meter height) for carrying out the activities of shield removal, D metering and thorough inspection and repair and re application of Shield.
3. Scaffolding material shall be provided by MPL
4. Removal of refractory to expose bends for thickness survey.

5. Cleaning of tubes for visual and D-metering of tubes.
6. Thorough inspection of the pressure part
7. Weld joint as per item 70.2, 70.3 and 70.4
8. RT of the weld joint and repair and re RT if required.

80. Refractory Work:

80.10. Activity- Refractory Work - Quantity- 20 MT

Note: Bidder to quote for quantity as stated above, however payment will be made based upon actual quantity executed.

1. Area for application of refractory – WW Screen, Back pass front hangers and Rear Arch Area.
2. Inserts or anchor/plate fixing if required for the refractory work is included in the scope.
3. Any Scaffolding requirement will be in bidders' scope.
4. Any chipping and removal of existing refractory is included in the scope.
5. Bidder shall mobilize all the necessary skilled manpower to perform the activity to the satisfaction of MPL EIC.
6. Supply of refractory materials, anchors and steel plates is in the scope of MPL.
